Journal of Statistical Mechanics: Theory and Experiment
An IOP and SISSA journal

ERRATUM

Erratum: Inelastic Maxwell models for monodisperse gas–solid flows (2015 *J. Stat. Mech.* P03015)

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Received 19 November 2015
Accepted for publication 2 December 2015
Published 22 March 2016

Online at stacks.iop.org/JSTAT/2016/039902
doi:10.1088/1742-5468/2016/03/039902

[3] www.eweb.unex.es/eweb/fisteor/vicente/

 1742-5468/16/039902+2$33.00

The relative difference $\Delta\mathbf{U}=\mathbf{U}-\mathbf{U}_g$ between the mean flow velocities of solid and gas phases was considered to be of zeroth-order in spatial gradients in our original article [1]. However, given that in the absence of spatial gradients $\mathbf{U}$ relaxes towards $\mathbf{U}_g$ after a transient period, the term $\Delta\mathbf{U}=\mathbf{U}-\mathbf{U}_g$ should be considered to be at least of first order in the Chapman–Enskog perturbation expansion. Although this conceptual error does not affect the main scientific outcomes of the paper, it slightly alters some of the results given in section 4.1 and appendix A.

To zeroth-order, the Boltzmann equation (50) of [1] for $f^{(0)}$ should be changed to

$$\partial_t^{(0)} f^{(0)} - \gamma \frac{\partial}{\partial \mathbf{V}} \cdot \mathbf{V} f^{(0)} = J[f^{(0)}, f^{(0)}]. \tag{1}$$

The balance equations at zeroth-order now give $\partial_t^{(0)} n = \partial_t^{(0)} U_i = 0$, $\partial_t^{(0)} T = -(\zeta + 2\gamma)T$ and hence,

$$\partial_t^{(0)} f^{(0)} = \frac{\partial f^{(0)}}{\partial n}\partial_t^{(0)} n + \frac{\partial f^{(0)}}{\partial U_i}\partial_t^{(0)} U_i + \frac{\partial f^{(0)}}{\partial T}\partial_t^{(0)} T = \frac{1}{2}(\zeta + 2\gamma)\frac{\partial}{\partial \mathbf{V}} \cdot \mathbf{V} f^{(0)}. \tag{2}$$

Substitution of equation (2) into equation (1) yields equation (53) of [1]. Thus, the zeroth-order solution is the same as the one obtained in the original paper.

To first-order, equation (A1) for $f^{(1)}$ of the original paper [1] should be changed to

$$\partial_t^{(0)} f^{(1)} - \gamma \frac{\partial}{\partial \mathbf{V}} \cdot \mathbf{V} f^{(1)} + \mathcal{L} f^{(1)} = -(D_t^{(1)} + \mathbf{V}\cdot\nabla) f^{(0)} + \gamma \Delta\mathbf{U} \cdot \frac{\partial f^{(0)}}{\partial \mathbf{V}}. \tag{3}$$

The balance equations to first-order for the number density n and the granular temperature T are given by equations (A2) and (A3), respectively, of the original paper [1], while the equation for the flow velocity $\mathbf{U}$ is given by

$$D_t^{(1)} \mathbf{U} = -\rho^{-1}\nabla p - \gamma \Delta\mathbf{U}. \tag{4}$$

Use of the above balance equations in equation (3) leads to equations (A4)–(A7) (or equation (54)) of the original paper [1]. Consequently, the kinetic equation of $f^{(1)}$ is the same as the one derived in the paper and, hence, the results obtained in sections 5 and 6 for the transport coefficients remain unchanged.

Reference

[1] Kubicki A and Garzó V 2015 *J. Stat. Mech.* P03015